Knowledge Management Strategies and Green Innovation Practices: Empirical Evidence from the Malaysian Public Sector

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ABSTRACT

This research study aimed to investigate the impact of knowledge management strategies, specifically knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application, on green innovation practices. Knowledge management strategies encompass processes within organizations that involve the development and dissemination of knowledge to enhance business performance. Harnessing knowledge is crucial not only for competitiveness but also for fostering innovation in support of sustainability. Green innovation practices have garnered attention from scholars and policymakers due to their ability to address environmental concerns. Furthermore, organizations increasingly recognize the importance of green practices, prompting globally competitive entities to continuously enhance their competencies to mitigate environmental degradation and improve overall organizational performance. Therefore, this study identified knowledge management strategies as variables that can support green innovation practices. To conduct the study, a quantitative research approach was adopted, and data collection utilized a closed-ended questionnaire adapted from a prior study. The questionnaire was distributed among employees in the public sector within the Klang Valley region of Malaysia. Purposive sampling was employed to select participants, resulting in the successful collection and analysis of 256 data sets. Descriptive and inferential statistics were performed using SPSS software. The findings indicate that knowledge management strategies, encompassing knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application, positively and significantly influence green innovation practices. Among these factors, knowledge sharing was found to have the most substantial impact on green innovation practices. These results confirm the importance of knowledge management practices for organizations seeking success in green innovation practices. Therefore, it is recommended that organizations support knowledge management activities to enhance the adoption of green innovation practices.

Keywords: Knowledge Management Strategies, Green Innovation Practices, Malaysia

RESEARCH HIGHLIGHTS

In this research study, a significant relationship was found between knowledge management strategies and green innovation practices in public sector organizations. The findings highlight that knowledge sharing is the most significant among the knowledge management strategies, namely knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application. Therefore, organizations should prioritize knowledge sharing to ensure efficient sharing of knowledge-related activities. Effective knowledge management strategies facilitate knowledge sharing, leading to the development of innovative solutions that align with organizational goals. Additionally, the public sector faces various challenges that can impact its ability to deliver effective services to citizens. Budget constraints, for instance, limit the resources available to public sector organizations, hindering their establishment and growth. Another challenge lies in meeting citizens' expectations, as they demand high-quality and accessible public services. Addressing these challenges necessitates effective knowledge management strategies that foster collaboration, innovation, and a strong commitment to continuous improvement. This study confirms that knowledge management strategies can assist public sector organizations in overcoming these challenges by providing the necessary information and resources to support green innovation practices. By cultivating a culture of knowledge sharing, the public sector can develop efficient solutions that promote sustainability and ultimately enhance organizational performance.
Research Objectives

This research study which is to determine the relationship between knowledge management strategies and green innovation practices. This research study examined the impact of knowledge management strategies (knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application) on green innovation practices in the public sector of Klang Valley, Selangor, Malaysia. Knowledge management are believed to improve awareness of green innovation practices and the organizational performance of public sector; thus, management of organizations must promote knowledge management by setting a good example, offering incentives to workers, or encouraging the proper mindset among staff members. Additionally, management must create rules to encourage environmentally friendly behaviours within the company to improve overall organisational performance. A green innovation practise can also be developed with the help of management to establish activities associated with green practices, such as a recycling programme, energy consumption reduction, etc. (Weina & Yanling, 2022). According to previous studies, Mardani et al. (2018), and Wang et al. (2021), both emphasized the need to expand the current literature on knowledge management and green innovation, for organizational sustainability. Therefore, this study aims to find out the relationship between knowledge management strategies i.e. knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application towards green innovation practices.

Methodology

This cross-sectional research study aimed to examine the relationship between knowledge management strategies (knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application) and green innovation practices. The study focused on employees from the public sector in the Klang Valley region of Malaysia, including professional, administrative, clerical, and service working groups. A survey instrument with a five-point Likert scale was adapted from previous research studies and customized to fit the Malaysian context. The questionnaire underwent validity checks by industry and academic experts, and revisions were made based on their feedback. The questionnaire consisted of six sections covering demographic information, knowledge creation, knowledge acquisition, knowledge sharing, knowledge application, and green innovation practices. Purposive sampling was employed, and respondents were approached through email. A follow-up email was sent after one week to increase response rates. A total of 256 valid responses were collected and analyzed. The data were sorted and organized using identification numbers to avoid duplication and facilitate quick reference. Multiple regression analysis was conducted using SPSS Version 26. The reliability test using Cronbach's Alpha analysis was performed for each group of variable indicators to test the consistency of the grouped indicators to measure the specific variable and the cut-off value for this test is 0.70 indicating the grouped indicators were consistent and reliable (Pallant, 2010). In addition, the normality test was also performed to test the normality assumption of each variable via the value of Skewness and Kurtosis statistics. Pallant (2010), also stated
that the variable can be considered approximately normally distributed if the value of Skewness and Kurtosis statistics are in the range of ±1.00.

Results

A multiple linear regression analysis was conducted to assess the impact of independent variables (knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application) on the dependent variable, green innovation practices. The results revealed that all four independent variables had a significant positive effect on green innovation practices. Specifically, knowledge creation (Beta = 0.150, t = 2.034, p < 0.05), knowledge acquisition (Beta = 0.173, t = 2.244, p < 0.05), knowledge sharing (Beta = 0.182, t = 2.229, p < 0.05), and knowledge application (Beta = 0.210, t = 2.049, p < 0.05) were found to be significant predictors of green innovation practices. This set of independent variables accounted for approximately 27.9% of the variance in green innovation practices. The model evaluation indicated that the regression model fit the data well, as evidenced by the significant ANOVA test (F (4,251) = 24.248, p < 0.01). Moreover, there were no issues of multicollinearity in the model, as the tolerance (TOL) and variance inflation factor (VIF) values were within acceptable ranges (TOL > 0.20, VIF < 10.00). The examination of residual values through the Normal Probability plot showed that they followed a normal distribution. Additionally, the scatter plot of standardized residual values against standardized predicted values indicated a random pattern, suggesting constant residual variances. Furthermore, no outliers were detected beyond the boundary of ±3.0 standard deviations. In summary, the multiple linear regression analysis confirmed that higher levels of knowledge creation, knowledge acquisition, knowledge sharing, and knowledge application were associated with higher levels of green innovation practices, assuming other variables remained constant. Among the independent variables, knowledge sharing had the highest standardized coefficient value (Beta = 0.182), followed by knowledge acquisition (Beta = 0.173), knowledge creation (Beta = 0.150), and knowledge application (Beta = 0.143). These findings suggest that organizations should emphasize knowledge sharing to promote green innovation practices.

Findings

The findings indicated that all four knowledge management strategies had a significant positive influence on green innovation practices, aligning with previous research conducted in Pakistan and Jordan that emphasized the importance of knowledge sharing. The study’s contributions extend to the public sector by highlighting the need to incorporate knowledge management strategies into business planning and funding to enhance green practices. The findings align with research done by Ahmad et al. (2023), Internal knowledge sharing benefits the in-house strategy and will aid in developing the organization’s creative approach to drive green practices. This study promoted a good work environment in the workplace, employee motivation, and effective knowledge management. The study demonstrates that organizations need to willingly invest in knowledge management practices and develop good strategies to share knowledge within the organization. An efficient system must be implemented to ensure activities on
knowledge sharing are efficient to increase the adoption of green innovation strategies. According to Buyong et al. (2021), employees must also understand the concept of green innovation practices to enable an organization to achieve successful green innovation performance. This study also proposed that the top management or executives emphasize green innovation and inventiveness in their firm’s culture to sustain their businesses. Organizations in various industries, with various characteristics, can refer to the appropriate green ideas to apply green innovation methods, save time, resources, and capital, and improve the efficiency of green innovation.

Additionally, investigating the role of public sector and government agencies in promoting green initiatives would provide valuable insights. In conclusion, the findings of this study have practical implications for policymakers, organizational management, employees, and stakeholders involved in decision-making. The results can guide policy formulation and the implementation of green practices across various business sectors. Recognizing the vital role of the public sector in economic growth and stability, this research contributes to fostering sustainability and environmental responsibility.

Therefore, organizational management should promote knowledge management by leading by example, providing incentives to employees, and cultivating a mindset that values knowledge sharing. Furthermore, management should establish policies and regulations that encourage environmentally friendly behaviors within the organization to enhance overall performance. To foster green innovation practices, management can also initiate activities such as recycling programs and energy consumption reduction initiatives (Weina & Yanling, 2022).

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